CAM Therapies: A Survey of Beliefs, Credibility, and Frequency of Use Among OSU Students

A Senior Thesis

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By

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Abstract

Complementary and alternative medicines (CAM) have been used for thousands of years to treat various illnesses and diseases (e.g., mediation, acupuncture, hypnosis). Although many of these approaches are still popular today, the scientific evidence supporting their use has been questioned (Ernst, Cohen, & Stone, 2004). We set out to survey attitudes and beliefs about a selective group of these therapies among undergraduate students enrolled in psychology classes and graduate students in occupational therapy, school psychology, clinical psychology, and counseling education at The Ohio State University. A total of 146 students (n_{male}=48; n_{female}=98; $n_{undergraduate}$=97; $n_{graduate}$=49) participated in our survey and completed the CAM Health Belief Questionnaire (CHBQ; Lie & Boker, 2004). There were nine participants that provided incomplete data on subsequent measures. The majority of our sample participants (n=137/146) also rated the credibility of 11 different CAM therapies and reported their frequency of using each approach. We predicted that females would be more likely to use CAM therapies relative to males. We also predicted that students who engaged in CAM approaches would score higher on the CHBQ. Further, we predicted a correlation between frequency of use and credibility ratings across the CAM approaches. Mean scores on the CHBQ total scale score did not differ by gender or college status (i.e., graduate vs. undergraduate). We found differences on several individual CHBQ items between our undergraduate and graduate students. We found a correlation between CHBQ total scores and total frequency scores, supporting our prediction that those who hold stronger beliefs about CAM are more likely to use various CAM approaches. As predicted, female students reported using CAM therapies more frequently than male students. Specifically, they were more likely to use massage, herbs/vitamins, aromatherapy/essential oils, and yoga. Within our sample, approximately two-thirds of students reported using

spirituality/religion and herbs/vitamins approaches. Among our 11 CAM therapies, yoga and meditation both ranked highly in terms of credibility to affect both physiological and psychological processes within the human body. We discuss our findings in light of other research.

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Holistic remedies and therapies that were used hundreds and thousands of years ago have shaped the development of complementary and alternative medical practices today. Complementary and alternative medicine (CAM) consists of a wide range of diverse therapies, practices, and products that do not fall into the category of conventional medicine (U.S. National Library of Medicine, n.d.). Alternative medicine refers to the use of non-conventional or non-mainstream approaches in place of traditional medicine. Complimentary medicine incorporates the use of non-conventional medicine in addition to the practice of conventional medicine. The terms "integrative care" or "holistic medicine" are used to refer to the practice of combining traditional and alternative approaches (National Center for Complementary and Integrative Health; NCCIH, 2018). Today, many researchers are studying the effects of bringing together CAM practices and conventional medicine in an organized and coordinated way.

Both the number of people who use CAM and the frequency of people using such approaches have been increasing over the last several decades (Kessler et al., 2001). According to Atsumi and Kamohara (2005), there was a 50% increase in visits to CAM providers between 1990 and 1997. And, visits to CAM providers were more frequent than visits to primary care physicians. The authors estimated that over 40% of individuals within the United States had used CAM in their lifetime. An updated report by the NCCIH in 2017 revealed that CAM use in the United States increased by more than 2% from 2002 to 2007 and that almost 12% of children have received CAM therapy as well (National Center for Complementary and Integrative Health; NCCIH, 2018). In addition, this report revealed that women were more likely to use CAM than men. Some of the most popular CAM therapies or products included natural products (e.g.,

herbs and vitamins), meditation, deep breathing, chiropractic medicine, massage, and yoga. The report noted statistically significant increases in the popularity of practices such as deep breathing, meditation, massage, and yoga between 2002 and 2007. In a large sample involving over 10,000 patients, Kristoffersen, Stub, Salamonsen, Musial, and Hamberg (2014) also found that women were more likely than men to use CAM. They found that 42% of women compared with 24% of men used CAM within the previous year.

People may use or engage in CAM therapies for a variety of reasons such as pain reduction and management, to promote bodily healing, or to reduce anxiety or stress (WebMD, 2019). Many individuals who suffer from chronic pain use CAM therapies such as traditional or laser acupuncture to try to relieve discomfort (Atsumi & Kamohara, 2005). Cancer patients are among a unique group of people who commonly use CAM. Ernst and Cassileth (1998) systematically reviewed 21 studies on adult cancer patients and found that 31%, on average, engaged in CAM. Cancer patients reported using meditation, yoga, acupuncture, or acupressure to reduce stress or alleviate side effects associated with chemotherapy (Cassileth, 1999). Further, many individuals use natural herbs and vitamin supplements to boost nutrition and maintain proper balance within the body. Some people may use massage or chiropractic approaches that manually manipulate the body in an effort to treat illness or physical injury (The Johns Hopkins University; Health Library, n.d.).

It is important to emphasize that the popularity of an approach does not guarantee that it is based on valid scientific evidence. Research on the effectiveness of CAM therapies seems to be lacking (Ernst, Cohen, & Stone, 2004). Many people criticize or question the validity of CAM therapies because of imprecise definitions of what constitutes a given approach. In addition, there is a wide variability of practice across people which further creates unclear

guidelines of a given approach. Sullivan et al. (2018) recently generated an explanatory model of yoga based on eudaimonic well-being to explore alternative methodologies to investigate and measure the effectiveness of the therapy. The authors included a description of eudaimonic well-being as follows; "Eudaimonia represents a state of human flourishing or sense of well-being that is non-transitory and is often connected to a sense of meaning, purpose, or self-realization (Ostwald, 1962; Keyes and Simoes, 2012)" (Sullivan et al., 2018, p. 6). Eudaimonic well-being has been associated with both physiological (e.g., reducing inflammation, enhancing the immune system) and psychological (e.g., lowering feelings of loneliness and improving mental functioning) benefits and is linked to living a longer life (Keyes and Simoes, 2012; Fredrickson et al., 2013; Cole et al., 2015). Still, it is unclear whether this model extends to other CAM approaches.

It is concerning that some supporters of CAM argue that the holistic nature of CAM therapies are less tangible or measurable by biomedical approaches. Whereas conventional practices focus on evidence based medicine that can be quantitatively measured, advocates of CAM argue that the effects of their therapies occur on levels that are not able to be analyzed with the same measurements. More specifically, the efficacy of many CAM approaches are lacking because it cannot be shown through double blind tests (Tabish, 2008). Research suggests that belief in CAM effectiveness outweighs the evidence supporting its use. In a meta-analysis conducted by Ernst and White (1998), patients felt relief from back pain from acupuncture however, similar outcomes were observed in patients receiving a placebo treatment. The authors noted that back pain is something that is difficult to measure, which leads to problems when trying to compare efficacy of treatments. In addition, acupuncture pressure points and the location of pressure points used may vary which leads to more difficulties when trying to

determine effective treatments. Research with objective, physiological measurements, and specificity of pressure points used in addition to subjective reports of pain would be helpful to better understand the efficacy of acupuncture. Cassileth (1999) noted that some CAM advocates argue that mind-body practices, such as prayer, can prevent or cure cancer despite the lack of evidence supporting this claim. It is concerning that the lack of scientifically credible evidence and poorly developed safety regulations associated with CAM approaches have only made a miniscule impact on consumer investment (Iyioha, 2011). In a 2007 survey, NCCIH reported that a total of 83 million adults spent around 33.9 million dollars out of pocket the previous year (NCCIH, 2018). Given this divide, it is worthwhile to survey primary care providers and patients about their attitudes and beliefs regarding the credibility of CAM approaches.

Researchers have developed several scales to measure attitudes and beliefs about CAM approaches. One such measure, the Integrative Medicine Attitude Questionnaire (IMAQ) is a 29-item scale designed to survey physician opinions towards using integrative medicine within their practice (Schneider, Meek, & Bell, 2003). The IMAQ uses professional medical terminology which limits its use with samples other than physicians. Lie and Boker (2004) designed a shorter and more readable scale that could be used with the general population. Their CAM Health Belief Questionnaire (CHBQ) is a 10-item scale assessing beliefs about the philosophy of using CAM approaches and attitudes about holistic patient care.

The present study set out to survey undergraduate and graduate students' views about CAM and to examine their beliefs about the credibility of using CAM approaches to treat physiological and psychological conditions. Our sample completed the CHBQ and then rated the credibility of 11 different CAM approaches in terms of the impact the therapy would have on affecting physiological and psychological processes within the body and mind. We predicted

that students who use CAM approaches would report more favorable attitudes on the CHBQ than those who don't use CAM therapies. Consistent with the findings from previous research (i.e., NCCIH, 2017; Kristoffersen et al., 2014), we predicted that women would report using CAM therapies more than men. We anticipated a correlation between using a given CAM approach and ratings of credibility for that approach. To our knowledge, the CHBQ has not been administered to undergraduate students. Our study set out to explore whether graduate and undergraduate students respond similarly on the CHBQ (total scale scores) as well as across the CHBQ individual items. Lastly, we created a credibility scale and a frequency of use scale to examine the popularity of CAM approaches among students.

Methods

Participants

A total of n=97 undergraduate students (n_{male}=40, n_{female}=57) enrolled in psychology courses at The Ohio State University at Lima completed our take home survey booklet in exchange for course credit (M_{age}= 19.392). Six undergraduate students completed the CHBQ but either failed to complete the rest of the survey or provided incomplete data on the rest of the measures. Accordingly, n=91 (n_{male}=36, n_{female}=55) undergraduate students provided complete data on CAM credibility questionnaire and the CAM frequency questionnaire.

We obtained permission from graduate program directors in occupational therapy, school psychology, counseling education, and clinical psychology to invite graduate students in these programs to complete an online version of our study. Graduate students were enrolled at The Ohio State University main campus. A total of 62 graduate students accessed the online survey. Eight graduate students viewed the solicitation script but did not actually begin the survey. An additional 5 graduate students provided only demographic data. These 13 cases were eliminated.

A total of n=49 graduate students (n_{male}=8, n_{female}=41; M_{age}= 26.10) completed the CHBQ. The breakdown of graduate students by program was as follows: occupational therapy, n=21; school psychology, n=12; counseling education, n=7; and clinical psychology, n=6. Three students did not specify their graduate program. Three graduate students that completed the CHBQ did not complete the rest of the survey or provided incomplete data on the remaining measures. As a result, n=46 graduate students (n_{male}=8, n_{female}=38) completed all the measures.

Across graduate and undergraduate student samples, a total of N=146 students completed the CHBQ and N=137 completed the CHBQ along with the credibility and frequency measures. Based on the larger sample, the race breakdown was as follows: 79.5% as *Caucasian*, 8.2% as *Black/African American*, 4.8% as *Hispanic*, 2.1% as *Asian*, and 5.5% reported being biracial or marked *Other*. Approval for this study was obtained by Ohio State's Institutional Review Board.

Materials

CAM Health Belief Questionnaire (CHBQ; Lie & Boker, 2004)*:* The CHBQ is a 10-item questionnaire made of Likert-scale questions with responses ranked from 1 to 7 with anchors of 1=*Absolutely disagree* and 7=*Absolutely agree*. For this study, we changed the wording of the anchors from *Absolutely* to *Strongly* to reflect the fact that all 7 response options fall on a continuum and we felt that the use of *absolutely* rather than *strongly* might imply two distinct categories. In addition, we slightly modified the wording of item 8 on the scale. Item 8 originally read as follows: "*Effects of complementary therapies are usually the result of a placebo effect*." Due to the fact that many of our undergraduate participants were recruited from first year, introductory psychology classes, we felt that some students may not understand of the concept of placebo effects. Therefore, we added the following to the end of item 8: "*i.e., simply*

due to patients' beliefs about the treatment." Total CHBQ scores were obtained as well as average response scores for each individual question within the scale.

CAM Credibility Questionnaire (CCQ): We composed a 22 item scale to assess participants' beliefs about the credibility of various CAM approaches. We chose 11 CAM therapies for the questionnaire which included meditation, massage, spirituality/religion, herbs/vitamins, chiropractic medicine, acupuncture, hypnosis, therapeutic touch, biofeedback, aromatherapy/essential oils, and yoga. A definition of each CAM therapy was provided prior to survey questions about its credibility. We provided definitions so students who lacked experience with or knowledge of a given CAM approach could gain an understanding and make a personal judgement on its credibility. Modified definitions were obtained from Merriam Webster's online dictionary (2019). For example, before questions about meditation were asked, the definition that was provided for students to read was as follows: "*to engage in mental exercise (such as concentration on one's breathing or repetition of a mantra) for the purpose of reaching a heightened level of spiritual awareness*"(Merriam Webster, Incorporated, 2019).

Following the definition for each CAM approach, students were asked two credibility questions. Participants rated on a 1 to 7 Likert-scale (1=*not credible at all*; 7=*very credible*) how credible they believed each CAM therapy approach is on affecting physiological and psychological processes. The first question read: "How credible to you think the practice of **meditation** is on affecting ***physiological*** processes within the human ***body*** such as: regulating heart rate, decreasing blood pressure, dealing with joint pain, enhancing immune functioning, or helping to improve overall ***physical*** health?" The second question read: "How credible to you think the practice of **meditation** is on affecting ***psychological*** processes within the human ***mind***

such as: regulating emotions, decreasing anxiety, dealing with stress, enhancing positive attitudes, or helping to improve overall ***mental*** health?" We calculated separate credibility scores by summing responses across the physiological and psychological questions. In addition, we totaled the 22 responses on the CCQ to generate a composite credibility score.

CAM Frequency Questionnaire (CFQ): We generated the CFQ to evaluate students' frequency of engagement with CAM therapies. For each of the 11 CAM therapies examined by the CCQ, we asked students to indicate if "you have used or engaged in a given therapy **in the last 5 years**" and if so, to "indicate how often you use or engage in that particular therapy on a monthly basis" by writing a number between 1 and 30. If respondents indicated *Yes* to using a therapy in the last five years, they obtained a score of *1* plus the number of times they engaged in that therapy on a monthly basis. Scores could range from 0 (indicating that they had not used it) to 31 (indicating that they had used it in the last 5 years and were practicing it on a daily basis). We also summed individual therapy frequency scores to generate a total CAM frequency score.

Procedure

Undergraduate students at Ohio State Lima were read a solicitation script and invited to participate in our study. Students were informed about the topic of the study, that there were no known risks to taking the survey, and that their names along with any other information that could potentially identify them were not to be included in the electronic data files. They were also informed that the study would take about 10-15 minutes of their time to complete, that their participation was voluntary, and that the study was IRB approved. Those who wished to participate were given a hard copy of the survey to complete at home and bring back to campus when finished. Students were able to drop off completed booklets to the faculty office where they were stored until the collection deadline. On the first page of the survey, students were

asked to write their name and psychology course they were enrolled in in order for course credit to be given for those who participated in the study. After the names of the students who participated were sent to professors, their names and course information were removed from the booklets before being entered into SPSS. By removing their names and course information prior to SPSS entry, research assistants within the psychology department had no way of knowing who completed each survey.

Our graduate student sample included four different programs in different departments at The Ohio State University main campus. To simplify data collection, an online format of the survey was generated. Directors of each graduate program were contacted via email with a description of the study were asked for their to approval to survey students within their program. Once approval was obtained, an invitation email was sent to the directors which they forwarded out to the program list of students. Graduates were informed of the topic of the study, that the online survey would take about 15 minutes of their time, and that it was approved by IRB. The link to the survey was included in the invitation email. The same solicitation script that was read to undergraduate students, informing them of the details of the study if they wished to participate, was presented at the beginning of the online survey for the graduate students. The survey was generated using an online survey program, Qualtrics, and followed the same format and order of questions as the take home questionnaire that was completed by undergraduates. Because we did not want participants to accidently skip a question, we formatted the survey so that they were forced to respond to the questions. If they accidently skipped a question and tried to move on, they were redirected to the question they missed to be able to answer and then continue with the study. Graduate student responses were added into SPSS along with the

undergraduate sample for statistical analyses once data collection was complete. At the end of each survey, students were thanked for their participation.

Results

CHBQ total scale score. Analysis of the CHBQ scores were based on the N=146 (n_{males}=48 $n_{females}$=98; $n_{undergraduate}$=97 $n_{graduate}$=49). We conducted a 2 (gender) x 2 (college status) ANOVA on overall CHBQ scores to determine whether CHBQ scores differed by gender or college status. As you can see in Table 1, there was no interaction between gender and college status and no main effects for either variable on CHBQ total scores, Fs(1, 142)<1.63, ps>.20.

CHBQ items. We conducted a 2 (gender) x 2 (college status) MANOVA using the individual CHBQ items as dependent variables. The multivariate tests showed no significant interaction between college status and gender [F(10.133)=0.68, p=.74] and no significant main effect of gender [F(10,133)=1.38, p=.20] on CHBQ item responses. We found a significant main effect of college status [F(10,133)=4.09, p<.001]. Following the multivariate tests, we examined univariate results across scores on the individual CHBQ items by college status. We found significant differences on four items. Table 2 displays the mean responses across the individual CHBQ items by college status, along with F and p values.

CCQ/CFQ. Analyses for the CCQ and CFQ were based on the N=137 (n_{males}=44 $n_{females}$=93; $n_{undergraduate}$=91 $n_{graduate}$=46). We conducted a 2 (gender) x 2 (college status) MANOVA on CCQ scores (physiological, psychological, and total scores) and CFQ scores. Multivariate tests showed that there was no significant interaction between gender and college status, F(3, 131)=2.10, p=.10. The main effect for college status was also not significant, F(3, 131)=1.02, p=.38). We obtained a significant multivariate effect for gender, F(3, 131)=4.24,

p<.01. According to univariate analyses, male and female students generated similar scores on the physiological (*M*=48.61, *SD*=9.09) and psychological (*M*=50.91, SD=9.43) subscale scores, on the total CCQ scale (*M*=99.52, SD=17.47), *F*s(1,133)<0.60, *p*s>.44. On the CFQ, female students (*M*=46.78, SD=30.36) reported using CAM therapies more frequently than male students (*M*=28.70, SD=28.99), *F*(1, 133)=7.92, *p*<.01. The mean score on the CFQ was *M*=40.97 (*SD*=31.00).

Given the significant multivariate effect for gender on the CFQ, we next conducted a MANOVA on the frequency of male and female students' usage of the 11 individual CAM approaches. The multivariate effect was significant, *F*(11, 125)=2.62, *p*=.005. Univariate tests showed significant differences for gender on the frequency of using massage, herbs/vitamins, aromatherapies/essential oils, and yoga. Table 3 lists the mean frequency scores by gender across the different CAM therapies, along with *F* and *p* values.

We calculated the percentage of students that reported using each of the 11 CAM approaches over the past 5 years and rank ordered the approaches based on popularity. Table 4 shows these rankings along with rank ordered ratings of mean credibility scores for both physiological and psychological processes.

Correlations across scales and subscales. We calculated Pearson Product Moment Correlations across the CHBQ total scale score, physiological and psychological sub scores of the CCQ, and total CCQ and CFQ scores. Table 5 displays these correlations. Lastly, we computed correlations across each individual therapy on the CFQ with both physiological and psychological credibility ratings for that therapy on the CCQ. These correlations and the average physiological and psychological credibility scores are shown on Table 6.

Discussion

We believe that our study was the first to explore potential differences between undergraduate and graduate students' scores on the CHBQ (Lie & Boker, 2004). We found that neither college status nor gender affected overall scores on the CHBQ. Whereas total scale scores did not differ by college status, undergraduate and graduate students responded differently on four of the ten CHBQ items. Relative to undergraduate students, graduate students held more favorable views about CAM approaches across 3 CHBQ items. More specifically, they were less likely to believe that CAM approaches are "usually the result of a placebo" (CHBQ item #8) and expressed greater belief that "patient's expectations, health beliefs and values should be integrated into the patient care process" (CHBQ item #5). They also were more likely to believe that conventional medicine could benefit from ideas and methods of CAM approaches (CBHQ item #9). However, graduate students were less likely to believe that "physical and mental health is maintained by an underlying energy or vital force" (CHBQ item #1). Similarly, graduate students were less likely to endorse the statement that disease stems from an imbalance of life forces (CHBQ item #2), however, this difference did not quite reach statistical significance. We wonder that the use of the words "energy force" might be interpreted as reflecting the belief that health is determined by some unknown form of energy that is inconsistent with scientific knowledge (e.g., based on anatomy or neurocognitive science). If this interpretation is correct, then it is not surprising that graduate students with their extended educational experiences would be less likely to endorse these statements.

Our prediction was supported that females would likely participate in CAM therapies more than males. Therapies such as massage, herbs/vitamins, aromatherapy/essential oils, and yoga were used significantly more by women relative to men. In addition, females engaged in each CAM therapy more than males except for chiropractic medicine. There was a miniscule

difference between the frequency of using chiropractic medicine between males and females. Within our sample, no males reported using acupuncture or therapeutic touch. It is interesting that females reported using therapeutic touch more than acupuncture despite little evidence that therapeutic touch is effective (Clark & Clark, 1984; Rosa, Rosa, Sarner, & Barrett, 1998).

As shown on Table 4, the most frequently used CAM approach was spirituality/religion (66.4%) followed by herbs/vitamins (62.0%) and then yoga (54.7%). Acupuncture was the least frequently used (2.2%) CAM approach in our survey. Whereas spirituality/religion was the most frequently used CAM approach, it ranked eighth in credibility to affect physiological processes such as regulating heart rate, reducing blood pressure, or pain. It ranked third among our CAM approaches in terms of credibility to affect psychological processes such as regulating emotions, encouraging positive attitudes, or reducing stress. Students ranked yoga as being the most credible CAM therapy to effect physiological processes within the body and ranked it second to meditation in affecting psychological processes. Students ranked therapeutic touch last in terms of credibility of affecting both physiological and psychological processes.

We found significant correlations across the CHBQ total scale score, CCQ total scale score, CCQ physiological subscale score, CCQ psychological subscale score, and CFQ total scale score. Consistent with our prediction, we found that students who engaged in CAM therapies scored higher on the CHBQ. That is, participants who engaged in CAM were more likely to be supportive of statements relating to CAM on the CHBQ. In addition, higher CHBQ scores correlated with higher credibility scores on the CCQ total scale score and the two subscale scores. As predicted, frequency of using CAM therapies (CFQ total scales scores) correlated with our credibility ratings (CCQ total scale score and subscales scores).

When we examined correlations between each individual CAM therapy and credibility subscale ratings, all but three of the correlations were significant (see Table 6). There was no significant correlation between chiropractic medicine or massage and the student's reported credibility of these two approaches to affect psychological processes. Students in our sample who used these approaches viewed them as being more credible in affecting physiological rather than psychological processes. Perhaps this was due to the fact that chiropractic medicine and massage focus on manual manipulations of the body. Although individuals may view massage as relaxing, the approach may not be thought of as regulating other psychological processes within the mind. The correlation between acupuncture and credibility of physiological processes was not significant either. Acupuncture could also be viewed as another form of manipulation of the physical body, however, it correlated with psychological and not physiological processes. This surprising finding might be due to the fact that only about 2% of our sample engaged in this practice.

A potential limitation of this study is that all undergraduates took the survey on a hard paper copy whereas graduates took the online format. Although students completed all of the questions in the same order, the survey format differed between our groups of students because it wasn't practical to try and sample graduate students in person. Future research could be more consistent by having everyone take the survey in the same format. Another difference was that our undergraduate students were enrolled at OSU Lima and our graduate students were enrolled on main campus. Also, some of the undergraduate students reported being in a separate hypnosis study during the same semester on the Lima campus. It is possible that their frequency ratings for using hypnosis could have been affected because they engaged in hypnosis during a separate study. There were two students who wrote on the CFQ that they were hypnotized 'in class at

OSU Lima'. These two responses were not counted towards their use of hypnosis because they indicated that on a normal monthly basis, they did not engage in hypnosis. Rather, they reported that they only used hypnosis when they participated in class. Another potential limitation of our study is the small sample size and the fact that all undergraduates came from Ohio State Lima while graduate students came from Ohio State in Columbus. Building off of this limitation, future research could survey undergraduate and graduate students from both urban and rural areas to explore potential differences in attitudes towards and use of CAM.

Although we asked about past experience with CAM, it would be interesting to ask about students' future plans to use CAM. This information would allow us to see that even for those who may not have used CAM in the past if they would consider using it in the future. It would also be beneficial to survey students with their views on the credibility versus validity of CAM. Being able to survey different terms and how students respond would give us a stronger understanding for their overall endorsement of CAM. Although we were fortunate enough to be able to survey four different graduate programs at Ohio State, having a larger sample size from each program would be beneficial to see if there were any differences across disciplines. Further, it would be great to see future research expand the graduate programs that we sampled with students from other disciplines such as medical students.

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Table 1

Mean responses to CHBQ total scores, main effects, and interaction based on gender and college status.

	M	*SD*	*F*	*p*
Gender			.04	.84
Male	42.48	5.31		
Female	43.65	7.17		
College Status			.09	.77
Undergraduate	43.36	5.67		
Graduate	43.08	8.25		
Gender * College Status			1.62	.20

Notes: Analyses were based on *N*=146 students.

Table 2

Mean responses by college status across CHBQ items.

	Undergraduate		Graduate			
CHBQ item	*M*	*SD*	*M*	*SD*	*F*	*p*
1. The physical and mental health are maintained by an underlying energy or vital force.	4.13	1.30	3.37	1.65	3.91	.05*
2. Health and disease are a reflection of balance between positive life-enhancing forces and negative destructive forces.	4.12	1.46	3.59	1.48	3.13	.08
3. The body is essentially self-healing and the task of a health care provider is to assist in the healing process.	4.69	1.53	3.94	1.28	1.66	.20
4. A patient's symptoms should be regarded as a manifestation of a general imbalance or dysfunction affecting the whole body.	4.01	1.41	3.59	1.59	.42	.52
5. A patient's expectations, health beliefs and values should be integrated into the patient care process.	4.93	1.44	6.18	1.05	19.13	.00*
6. Complementary therapies are a threat to public health.^	2.75	1.31	2.45	1.06	1.30	.25
7. Treatments not tested in a scientifically recognized manner should be discouraged.^	4.28	1.56	4.45	1.49	1.75	.19
8. Effects of complementary therapies are usually the result of a placebo effect. ^	4.23	1.22	3.67	1.20	5.79	.02*
9. Complementary therapies include ideas and methods from which conventional medicine could benefit.	4.45	1.00	4.96	1.31	5.54	.02*
10. Most complementary therapies stimulate the body's natural therapeutic powers.	4.28	1.06	4.02	1.28	.22	.64

Notes: Analyses were based on *N*=146 students. ^ Items 6, 7, & 8 are reverse scored when calculating total CHBQ scores (means above are actual and not reverse scored). Across all items (after reverse scoring of items 6, 7 and 8), higher values signify greater support for or belief in CAM therapies. * $p \leq .05$.

Table 3

Mean frequency scores by gender across CAM therapies.

	Male		Female			
CAM Therapies	*M*	*SD*	*M*	*SD*	*F*	*p*
Meditation	3.73	7.52	4.57	7.09	0.41	.52
Massage	1.23	2.94	2.65	4.41	3.79	.05*
Spirituality/Religion	10.84	12.54	11.75	13.05	0.15	.70
Herbs/Vitamins	8.07	12.30	13.68	13.03	5.73	.02*
Chiropractic Medicine	0.91	1.76	0.82	1.85	.08	.78
Acupuncture	0.00	0.00	0.05	0.31	1.33	.25
Hypnosis	0.61	1.20	0.66	0.91	0.05	.82
Biofeedback	0.50	2.51	0.92	4.00	0.42	.52
Therapeutic Touch	0.00	0.00	0.71	2.80	2.81	.10
Aromatherapy/Essential Oils	1.09	2.46	6.80	8.44	19.27	.00*
Yoga	1.73	5.02	4.17	5.70	5.92	.02*

Notes: Analyses were based on N=137 students. * $p \leq .05$.

Table 4

Mean frequency percentage of CAM usage; means and standard deviations of reported physiological and psychological credibility.

		CCQ Physiological			CCQ Psychological		
CAM	Frequency %	Rank	*M*	*SD*	Rank	*M*	*SD*
Spirituality/Religion	66.4%	8	4.22	1.72	3	5.49	1.34
Herbs/Vitamins	62.0%	4	4.96	1.34	5	4.61	1.38
Yoga	54.7%	1	5.47	1.27	2	5.60	1.25
Meditation	52.6%	3	5.08	1.44	1	5.80	1.23
Massage	52.6%	2	5.21	1.29	4	5.19	1.30
Aromatherapy/Essential Oils	48.9%	9	3.69	1.51	6	4.55	1.51
Hypnosis	32.8%	10	3.19	1.45	10	3.72	1.59
Chiropractic Medicine	25.5%	5	4.96	1.29	8	4.02	1.41
Biofeedback	10.2%	7	4.33	1.51	7	4.39	1.53
Therapeutic Touch	5.1%	11	3.15	1.68	11	3.55	1.77
Acupuncture	2.2%	6	4.34	1.46	9	4.00	1.44

Notes: Rank ordering ranges from top (most frequent or most credible rating) to bottom (least frequent or least credible rating). The "frequency (%)" column reflects the percentage of students that reported using a given CAM approach within the last 5 years.

Table 5

Correlations of CHBQ, CCQ, and CFQ scores.

	CHBQ Total	CCQ Physiological	CCQ Psychological	CCQ Total	CFQ Total
CHBQ Total	-	.430**	.439**	.461**	.236**
CCQ Physiological		-	.778**	.941**	.322**
CCQ Psychological			-	.945**	.324**
CCQ Total				-	.342**
CFQ Total					-

** Correlation is significant at the 0.01 level (2-tailed). *N*=137 for all correlational analyses.

Table 6

Correlations between frequency and credibility ratings across the various CAM approaches.

CAM Therapy	CCQ: Physiological	CCQ: Psychological
Meditation	.36**	.30**
Massage	.23*	.06
Spirituality/Religion	.43**	.52**
Herbs/Vitamins	.29**	.21*
Chiropractic Medicine	.17*	.00
Acupuncture	.03	.20*
Hypnosis	.20*	.19*
Biofeedback	.25**	.24**
Therapeutic Touch	.27**	.27**
Aromatherapy/Essential Oils	.18*	.23*
Yoga	.26**	.25**
Average *r* across the 11 CAM approaches.	.24	.20

Note: * p<.05; ** p<.01.